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—of usable magnetic material. The plaintiff testified that he could use and had used in dentures magnetic material existing prior to the development of Alnico and the judge properly so found.

[1] Nor can we accept the defendants' contention that the patent was inoperable or otherwise lacking in patentable utility. It is true that the plaintiff testified that for certain patients, whose bony ridges were too slight to prevent lateral displacement of the dentures, his early magnetic dentures did not give completely satisfactory results. But he also testified that for patients with bony ridges sufficient to prevent lateral displacement his patented structure was distinctly helpful. This was enough to uphold the patent against this criticism. An article invented may have patentable utility even though the patented device is not unfaillingly operable in all its applications. *Hildreth v. Mastoras*, 257 U.S. 27.

In *Freedman v. Friedman*, U.S.D.C.Md., 142 F.Supp. 426, 110 USPQ 82, the court dismissed a suit for infringement of this same patent against another defendant on the ground of non-infringement, stating that due to default by the defendant no contest had been raised on the issue of validity and suggesting, by way of dictum, that the validity of the patent was doubtful under the rule of *O'Reilly v. Morse*, 15 How. 62, 112-113, 117, and *The Telephone cases*, 126 U.S. 1, 523. On appeal, the holding of non-infringement was reversed. 242 F.2d 364, 113 USPQ 1. The appellate court in directing a small judgment for the plaintiff treated the patent as valid for purposes of that case and, in contrast with the court below, abstained from any intimation as to the validity of the patent and the doubt as to validity expressed in the opinion below we think not supported by the cases cited.

As to infringement, the evidence showed that the defendants have sold strips of artificial teeth mounted on magnets adapted for use in upper and lower dentures with the like poles of the magnets in opposing position. The evidence warranted—indeed, we think, required—an inference that the defendants knew that these strips of teeth were especially adapted for use in dentures, that dentures incorporating such strips would in fact infringe the patent in suit and did not constitute a staple article suitable for substantial non-infringing use. Thus was presented the same problem as to contributory infringement under 35 U.S.C.A. § 271(c) which was decided adversely to the defendant in the appellate opinion in *Freedman v. Friedman*, supra. We are in full accord with that opinion.

Affirmed.

## Court of Appeals, District of Columbia

Dow v. WATSON, Comr. Pats.

No. 13758 Decided Oct. 3, 1957

### PATENTS

#### Particular patents—Furnace

Dow, Heat Treating Furnace and Method, claims of application rejected.

Appeal from District Court for District of Columbia.

Action under 35 U.S.C. 145 by Doris B. Dow, Trustee for John A. Dow (application, Serial No. 746,277, filed May 6, 1947; Patent Office Division 3) against Robert C. Watson, Commissioner of Patents. From judgment for defendant, plaintiff appeals. Affirmed.

EDWIN J. BALLUFF, Detroit, Mich. (SOLON B. KEMON, Washington, D.C., on the brief) for appellant.

S. WILLIAM COCHRAN (CLARENCE W. MOORE on the brief) for appellee.

Before PRETTYMAN, WASHINGTON, and BURGER, Circuit Judges.

#### PER CURIAM.

This is an appeal from a judgment of the District Court denying, after a trial de novo, 35 U.S.C. § 145, patentability of an electric furnace for heat treating metal products. The ground for the denial was that Dow's furnace was "merely \* \* \* a combination of elements of well known [prior] art." The Primary Examiner and the Board of Patent Appeals had earlier come to the same conclusion. We have examined the contentions of the appellant in the light of the record, and find no error which would warrant disturbing the findings of the District Court. *Standard Oil Development Co. v. Marzall*, 86 U.S.App.D.C. 210, 181 F.2d 280, 84 USPQ 363 (1950).

Affirmed.

District Court, N. D. Illinois, E. Div.

AUSTENAL LABORATORIES, INCORPORATED  
v. NOBILUM PROCESSING COMPANY  
of CHICAGO et al.

No. 53 C 1316 Decided June 5, 1957

### PATENTS

#### 1. Claims—Indefinite—In general (§ 20.-551)

Claims merely setting forth physical characteristics desired in article, and not

setting forth specific characteristics would meet such valid as vague, in since they cover combination of ingredients existing or which in future and various characteris

#### 2. Claims—Indefinite (§ 551)

Claim is invalid it recites that patent recovery from to become permanent pressures norma

#### 3. Claims—Indefinite (§ 551)

Claim is invalid it provides that "essentially of rock cellulose" inasmuch as of rosin de of compounds containing ethyl cellulose; thousands possess chemical character which will result in results.

#### 4. Specification—Indefinite (§ 62.7)

Patent is void so vague and in alleged invention requiring further order to achieve de

#### 5. Specification—Indefinite (§ 62.7)

Since patentee produce satisfactory teachings of patent acceptable commencing substituted material and after resorting by patent, it fails not disclose in patent sufficiently precise as public to practice

#### 6. Infringement—

That defendant cially successful in not infringe patents it is impossible commercially accepta

#### Particular patents

2,461,416, Erdle Material, Pattern, to 3, 6 to 10, and not infringed.

Action by Austen Laboratories, Incorporated, against Nobilum Processing Company of Chicago, Inc., and Alloys patent infringement

setting forth specific compositions which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics.

**2. Claims—Indefinite—In general (§ 20-551)**

Claim is invalid as indefinite where it recites that pattern has sufficient elastic recovery from distortion so as not to become permanently distorted under pressures normally required.

**3. Claims—Indefinite—In general (§ 20-551)**

Claim is invalid and indefinite where it provides that patterns shall consist "essentially of rosin derivatives and ethyl cellulose" inasmuch as there are thousands of rosin derivatives and thousands of compounds coming within category of ethyl cellulose; these thousands of compounds possess different physical and chemical characteristics; their combination will result in thousands of different results.

**4. Specification—Sufficiency of disclosure (§ 62.7)**

Patent is void where its disclosure is so vague and indefinite that it leaves alleged invention in realm of speculation requiring further experimentation in order to achieve desired result.

**5. Specification—Sufficiency of disclosure (§ 62.7)**

Since patentee's expert is unable to produce satisfactory article by following teachings of patent and cannot produce acceptable commercial article after having substituted materials not called for and after resorting to step not disclosed by patent, it follows that patentee did not disclose in patent information sufficiently precise and complete to enable public to practice invention.

**6. Infringement—Evidence of (§ 39.45)**

That defendants' device is commercially successful is evidence that it does not infringe patent from whose teachings it is impossible to produce commercially acceptable device.

**Particular patents—Pattern**

2,461,416, Erdle and Schaar, Pattern Material, Pattern, and Method, claims 1 to 3, 6 to 10, and 13 to 19 invalid and not infringed.

Action by Austenal Laboratories, Incorporated, against Nobilium Processing Company of Chicago, Nobilium Products, Inc., and Alloys and Plastics, Inc., for patent infringement in which Julius

Aderer, Inc., intervened as defendant. Complaint dismissed.

BROWN, JACKSON, BOETTCHER & DIENNER, Chicago, Ill. for plaintiff.

ALVIN E. STEIN, Chicago, Ill., and CHURCHILL, RICH, WEYMOUTH & ENGEL, New York, N.Y., for defendants.

CAMPBELL, District Judge.

This is an action alleging infringement of patent No. 2,461,416, entitled "Pattern Material, Pattern and Method", granted February 8, 1949, to Reiner W. Erdle and Charles H. Schaar. Plaintiff, Austenal Laboratories, Inc., acquired the patent by assignment from Erdle and Schaar.

The patent in suit relates to a ready-made casting pattern for use in casting metal dentures and other articles as a substitute for the wax patterns which had previously been used for that purpose. Of the nineteen claims recited in the patent, plaintiff relies on fifteen (that is, claims 1-3, 6-10 and 13-19). Claims 1-3, 6-10 and 15 of those relied upon specify that the patterns shall be used in dental casting operations while the remaining six claims are not so limited to the dental field and thus are drawn to cover casting operations outside the dental field.

Plaintiff, Austenal Laboratories, Inc., is engaged in the business of manufacturing a chrome-cobalt alloy which it sells to its various franchised or licensed laboratories which in turn use this product in making metal dentures. Plaintiff sells this product under the trademark "Vitalium". Plaintiff also sells ready-made dental casting patterns which are alleged to embody the invention of the patent in suit. Plaintiff sells these patterns under the trademark "Flexseal".

Defendants, Nobilium Processing Company of Chicago, Nobilium Products, Inc., and Alloys and Plastics, Inc. are engaged in the business of selling a chrome-cobalt alloy under the trademark "Nobilium". These alloys are also used in the production of metal dentures. The Nobilium companies also sell ready-made dental casting patterns under the trademark "Nobilforms". These patterns are alleged to be infringements of the patent in suit.

The intervener-defendant, Julius Aderer, Inc., is engaged in the business of selling gold and precious metal alloys for use in making metal dentures. Aderer sells its ready-made dental casting patterns under the trademark "Cast Forms". Plaintiff charges that these patterns infringe the Erdle and Schaar patent. (The Aderer Company will be treated in this memorandum as though it belongs in the same group which comprises the Nobilium companies.)

## HISTORICAL BACKGROUND

Before any study of the subject matter can be attempted, a discussion of the pertinent background material seems most appropriate. The preparation of a metal denture requires several steps. First, the attending dentist takes an impression of the patient's mouth. This impression actually amounts to a negative of the mouth since the gums and teeth show as cavities rather than as a reflection of their natural shape and form. From this impression, a master model in plaster is prepared which, in effect, constitutes a positive or true picture of the patient's gums and teeth.

The master model is then used for the purpose of preparing a refractory model which is able to withstand the high temperatures required for dental casting purposes. The refractory model is also a positive of the patient's gums and teeth and, depending on the skill of the technician, represents, as nearly as possible, an exact reproduction of the gum and tooth structure of the patient.

Prior to the invention of the patent in suit, the next step was to coat the refractory model with a substance called "model dip". This process served the dual purpose of providing a "tacky" surface and preventing the refractory material from powdering or flaking off.

The next step was to sketch, in pencil, an outline of the refractory model. This outline defined the areas to be included in the metal denture and determined its general cross-section and shape. The sketch would consist of various dental sections including clasps (which grip around a retaining tooth), palatal bars (which extend across the palate of the patient), lingual bars (which are used on a lower denture around the inside of the teeth), and retention areas (which serve as an anchoring or fastening means for the teeth which are to be supplied to the denture).

After the refractory model had been sketched, it was then customary to form a wax pattern of the metal denture by dripping hot wax (using a hot spatula) onto the refractory model and within the confines of the pencil markings of the sketch. This technique was called "hand waxing". The technician would drip as much hot wax onto the refractory model as was necessary to suitably form the cross-section and shape of the clasps, palatal bar, lingual bar and the retention areas.

The next step was to connect this wax pattern to a so-called casting flask so that when the wax was subsequently eliminated, continuous paths were thus provided through which the metal would flow into the cavities so provided by

the elimination of the wax pattern. After the model had been suitably sprued, it would then be placed into a casting flask which would be filled with a so-called "investment material".

Next, this flask assembly would be placed into a furnace which would be raised to a temperature sufficiently capable of causing the wax of the casting pattern and of the sprues to be completely eliminated from the mold; otherwise, imperfect castings would result since the metal could not flow into the spaces which remained occupied by the residue left on the mold.

Following this step, the refractory mold was then placed on a centrifugal casting machine and molten metal under centrifugal force would be permitted to enter all the empty spaces left by the elimination of the wax pattern. Thus, when this molten metal became solidified, and was removed from the mold, it would then become the cast metal denture.

Finally, the sprues and burrs were removed and the metal denture would be polished and tested to determine whether the denture conformed to the particular requirements of the patient. Teeth would then be added to the denture and the process would be completed.

The process herein described was in use for several years and was commonly known in the field as the "lost wax process".

As time progressed, it became apparent that there were several sections of a metal denture which were common to many dentures. Among these were certain types of wires which were capable of being used for forming retention areas, parts of clasps, and lingual bars. Thus, hand extrusion devices began to be used by the laboratory technician in preparing ready-made wax dental casting forms which generally had the desired cross-sectional dimension and shape of that part of the denture for which they were intended.

In later years, the Kerr Manufacturing Company of Detroit, Michigan, placed on the market various types of ready-made wax sections which the laboratory technician could use to form clasps, lingual bars, retention areas, etc. This served to eliminate complete hand waxing.

In 1942 the J. M. Ney Company of Hartford, Connecticut, introduced the "Ney Waxing Die Plate" and its companion book of instructions, "The Ney Partial Denture Book". Suffice it to say, at this point, that the Ney Company disclosed and taught a technique of providing ready-made dental casting patterns for application to dental models. It was disclosed that these ready-made dental castings corresponded generally to

the cross-section of the article.

Finally, the patent in suit, dated December 2, 1942, was granted by the Patent Office on February 1, 1943, of this patent casting field after in this

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At the trial were considered in suit. fore, to set

For all purposes and 2 can be except that with a ready pattern, claim made casting tion can be that it perture palatal claims 1 and language, it shall be of:

"\* \* \* cross-section shape corresponding of the article essentially having a pressure-resistant malleable plastic by heat formed said pattern recovery from the cross-section so as not distorted and required for

Claims 8 and 2, respectively, are called for in shall consist of parts and eth-

Claim 19 is

"In combination with a surface to be applied to the pattern and the face of the a pattern said pattern sectional dimensions corresponding to the sections and cast and capable plastic heat from a tern having adapted and of the mode

the cross-sectional dimensions and shape of the article to be cast.

Finally, the Erdle and Schaar patent, the patent in suit, was applied for on December 2, 1944 and the patent was granted by the United States Patent Office on February 8, 1949. The effect of this patent in the ready-made dental casting field will be discussed herein-after in this memorandum.

#### THE PATENT IN SUIT

At the trial, claims 1, 2, 8, 9 and 19 were considered as examples of the patent in suit. It might be helpful, therefore, to set forth these claims herein.

For all practical purposes, claims 1 and 2 can be treated as being identical except that while claim 2 concerns itself with a ready-made denture clasp casting pattern, claim 1 merely refers to a ready-made casting pattern. (The same observation can be made as to claim 3 except that it pertains to a ready-made denture palatal bar casting pattern.) In claims 1 and 2 it is provided, in identical language, that the pertinent pattern shall be of:

"\* \* \* cross-sectional dimensions and shape corresponding generally to the cross-sectional dimensions and shape of the article to be cast and composed essentially of thermo-plastic material having a surface which is non-setting, pressure-sensitive adhesive, said thermoplastic material being eliminatable by heat from refractory molds, and said pattern having sufficient elastic recovery from distortion with respect to cross-sectional dimension and shape so as not to become permanently distorted under pressures normally required for adhesion purposes."

Claims 8 and 9 are based on claims 1 and 2, respectively, and provide that the patterns and denture clasp patterns called for in claims 1 and 2, respectively, shall consist "essentially of rosin derivatives and ethyl cellulose".

Claim 19 reads as follows:

"In combination, a model having a surface to which a pattern is adapted to be applied, a ready-made casting pattern adhesively secured to the surface of the model to form on the model a pattern for an article to be cast, said pattern being preformed to cross-sectional dimensions and shape corresponding to the cross-sectional dimensions and shape of the article to be cast and consisting essentially of flexible plastic material eliminatable by heat from a refractory mold, said pattern having sufficient flexibility to be adapted and conformed to the surface of the model and sufficient resistance to

distortion with respect to cross-sectional dimensions and shape so as not to become permanently distorted under pressures normally required in adapting and conforming it to the surface of the model and for adhesion purposes, and said pattern having a surface for application against the surface of the model, both the surface of the pattern and the surface of the model being of adhesive character whereby they are adhesively secured together."

#### THE DEFENSES ASSERTED

The several defenses advanced by the defendants shall be considered as each is particularized herein. The principal defense asserted is that the patent in suit lacks invention in view of the prior art patents and publications. The publications relied on are "The Ney Partial Denture Book" published in 1942 and a publication entitled "Ethyl Cellulose-Resin-Plasticizer Mixtures" which was distributed by the Hercules Powder Company in 1938. The patents relied on consist of U.S. patent No. 2,136,404 to Wheeler dated Nov. 15, 1938; and U.S. patent No. 2,142,039 to Abrams et al. dated December 27, 1938. It is interesting to note, parenthetically, that none of these prior art patents and publications was cited by the United States Patent Office examiner during the prosecution of the application for the patent in suit.

The evidence discloses that the Ney waxing die kit and the companion publication, "The Ney Partial Denture Book", had a rather wide-spread distribution in the field at least one year prior to the filing date of the application for the patent in suit. It was adequately established at the trial, and a study of the Ney publication would immediately reveal, that the Ney Company taught how to produce ready-made dental casting patterns in the forms of clasps, palatal bars, lingual bars and retention areas which had cross-sectional dimensions and shapes corresponding generally to the cross-sectional dimension and shape of the article to be cast; that these patterns were composed essentially of thermoplastic materials; that they were caused to adhere to the dental model through their pressure-sensitive adhesive surface; that these patterns were eliminatable by heat from the refractory mold and that these patterns had relatively little distortion with respect to cross-sectional dimensions and shape when applied to the dental model under pressures normally required for adhesion purposes.

It is abundantly clear, therefore, that the Ney waxing die plate technique com-

pletely anticipated claims 1-3, 6, 7, 13-16, 18 and 19 of the patent in suit.

Additionally, however, the Wheeler patent taught that "resinous materials" could be used as a substitute for dental wax in the preparation of ready-made preformed dental casting patterns. The Wheeler patent also taught that other combinations of thermoplastic materials could be used to make the patterns more adhesive and flexible.

The Abrams patent taught that combinations of various resins including ethyl cellulose and rosin derivatives could be used to produce a non-setting, pressure-sensitive adhesive formulation.

The Hercules Powder Company publication entitled "Ethyl Cellulose-Resin-Plasticizer Mixture" discloses various mixtures of ethyl cellulose with particular rosin derivatives and in various proportions and describes the adhesive characteristics of said compositions to various surfaces. This publication also sets forth a series of tables giving the compatibility of ethyl cellulose and various resinous materials.

In addition to this prior art, United States patent No. 2,357,833 to Kropscott and Hunter entitled "Thermoplastic Molding Composition", sets forth typical ethyl cellulose plastic formulations containing ethyl cellulose and resin plasticizers. The proportions of these substances in this patent are such so as to provide a relatively hard type of material.

Thus, the prior art establishes that prior to the application for the patent in suit it was well known that ready-made dental casting patterns could be prepared from wax or from resinous materials; that these ready-made patterns could be made more adhesive and flexible by adding other materials; that combinations of ethyl cellulose and rosin derivatives had been used in the past to provide pressure-sensitive adhesive compositions which could be attached to a variety of materials; and that the characteristics of the resulting material from the standpoint of hardness, tackiness, flexibility, etc., could be varied according to the proportion of ethyl cellulose to rosin derivatives.

In the light of the prior art, therefore, it is evident that Erdle and Schaar, if they had resorted to such prior art, needed only to experiment with the various combinations of ethyl cellulose with rosin derivatives until a particular, desired formulation was found which met the particular needs of the problem presented. I believe it manifest that what Erdle and Schaar did was that which any person skilled in the art would have done. By a process of elimination, trial and error, Erdle and Schaar merely at-

tempted to find the right type of ethyl cellulose, the right type of rosin derivatives and the correct critical proportions of each which, when combined, imparted the desired physical characteristics.

The question thus arises whether Erdle and Schaar advanced "the frontiers of science", *General Electric Co. v. Jewel Co.*, 326 U.S. 242, 249, 67 USPQ 155, 158; or pushed "back the frontiers of chemistry, physics and the like", *Great A. & P. Tea Co. v. Supermarket Corp.*, 340 U.S. 147, 154, 87 USPQ 303, 306 (concurring opinion of Mr. Justice Douglas); or revealed "the flash of creative genius, not merely the skill of the calling", *Cuno Corp. v. Automotive Devices Corp.*, 314 U.S. 84, 91, 51 USPQ 272, 275. I believe, in view of the prior art, particularly the Ney Process and the prior art disclosed by the Abrams and Wheeler patents, that Erdle and Schaar's contribution to the field falls far short of constituting an invention within the purview of the United States Patent Law and, indeed, far short of the limited scope of invention now given by the United States Supreme Court. I hold, therefore, that the Erdle and Schaar patent is invalid for want of invention in view of the disclosures of the prior art patents and publications.

In accordance with this holding, I hold that the presumption of validity which attaches to the patent in suit by virtue of its issuance does not stand against this pertinent prior art which was not considered by the Patent Office examiner. *Boynton v. Chicago Hardware Foundry Co.*, 7 Cir., 77 F.2d 799, 26 USPQ 30; *Moran v. Protective Equipment*, 7 Cir., 84 F.2d 927, 30 USPQ 185.

Another principal defense asserted is the contention that the pertinent claims of the patent in suit are invalid as being vague and indefinite.

From the evidence adduced, it appears beyond doubt that to attain the physical characteristics desired in a pattern material it was necessary to use precise chemical formulations of particular materials in certain, specified critical proportions. If this was not done, the pattern would be found to be unsuitable as being "too soft", "too brittle", "lacking in tack", etc. Thus, it seems quite clear that if one used the identical ingredients called for but varied the proportions of the ingredients a fraction of one percent, an unsuitable pattern would result.

[1] Even the most cursory reading of claims 1-3, 6, 7, 13-16, 18 and 19 would immediately reveal that Erdle and Schaar merely set forth therein the physical characteristics desired in the particular dental casting pattern and did not set forth therein the specific

compositions characteristic that these definite and fun they would c bination of either present be discovered would impart acteristics. I claims the sp chemical equi found, when proportions, v and perform the claims, spelled out tl posed to be the actual sc Supreme Cou ture Compan: 277 U.S. 245 avoid the use covery, as "could do sc perimentation pany v. Perk 245, 257.

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compositions which would meet such characteristics. It would seem, therefore, that these claims are vague and indefinite and functional in character since they would cover any conceivable combination of chemical ingredients which either presently exist or which might be discovered in future years and which would impart the desired physical characteristics. By not setting forth in these claims the specific ingredients and their chemical equivalents which the patentees found, when combined in the critical proportions, would possess the properties and perform the functions set forth in the claims, Erdle and Schaar merely spelled out the problem which was supposed to be solved and did not disclose the actual solution to it. Thus as the Supreme Court stated in *Holland Furniture Company v. Perkins Glue Company*, 277 U.S. 245, one attempting to use or avoid the use of Erdle and Schaar's discovery, as so claimed and described, "could do so only after elaborate experimentation". *Holland Furniture Company v. Perkins Glue Company*, 277 U.S. 245, 257.

[2] As the evidence discloses, the only limitation contained in these claims that could be said to be novel is the following:

"said pattern having sufficient elastic recovery from distortion with respect to cross-sectional dimension and shape so as not to become permanently distorted under pressures normally required for adhesion purposes."

However, it is clear that this limitation, rather than attempting to particularly point out and distinctly claim the subject matter of the alleged invention merely continues the patentees' use of indefinite terminology which the Court of Appeals for this circuit has consistently condemned. *Helfrich v. Solo*, 59 F.2d 525, 13 USPQ 362; *Therm-O-Proof Insulation Co. v. Slayter & Co.*, 80 F.2d 557, 28 USPQ 98; *National Theatre Supply Co. v. Da-Lite Screen Co.*, 86 F.2d 454, 32 USPQ 225.

The quoted limitation of the patent in suit would seem to be just as objectionable as the limitation:

"Said material being of sufficiently light weight and devoid of free moisture content of sufficient amount to cause bulging or other injurious effects upon the exposed surfaces of said walls"

which was held invalid and void for indefiniteness in the *Therm-O-Proof Insulation* case, *supra*, wherein the court stated at page 559 of 80 F.2d, 28 USPQ at 97-100:

"Unfortunately for the validity of the claim, greater indefiniteness and

more vagueness could hardly be found. It is so worded (accidentally or intentionally) as to catch an alleged infringer coming or going."

This is precisely the situation in the case at bar—the claims are so worded that an alleged infringer would be caught "coming or going".

[3] Nor do claims 8 to 10 and 17 escape the label of "vagueness" and "indefiniteness" since they merely provide that the particular patterns called for in the other claims shall consist "essentially of rosin derivatives and ethyl cellulose". From the evidence adduced, it appears that there are thousands of compounds coming within the broad designation of "rosin derivatives" and there are equal thousands coming within the category of "ethyl cellulose". It is equally clear, also, that the thousands of compounds that come within these two categories possess different physical and chemical characteristics, so that when these compounds are combined in any given proportion, literally thousands of different results would be attained depending on the particular compounds used and the critical proportions selected. Thus, it is quite apparent that claims 8 to 10 and 17 of the patent in suit are vague and indefinite in that they fail to specify the particular rosin derivatives, particular grade of ethyl cellulose, and the particular critical proportions thereof, which, when mixed, would impart the required characteristics set forth in the claims.

I hold, therefore, that all of the claims relied on in the instant case (that is, claims 1-3, 6-10, and 13-19) are invalid and void as being vague and indefinite.

Still another defense asserted is that the specification of the patent in suit is so vague and indefinite that a person skilled in the art could not use the alleged invention. Section 112 of Title 35 U.S.C. provides that:

"The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same \* \* \*."

In the application for the patent in suit, Erdle and Schaar set forth five pattern examples, Pattern Examples I to V, which they thought were suitable dental pattern material formulations. In this application, Erdle and Schaar disclosed in Pattern Examples I to V particular ingredients having particular physical and chemical characteristics—this was done by enumerating the trade names applied to these materials. Later

the Patent Office examiner called on the applicants to give the precise chemical formulas or particular chemical names for such compounds. Thereafter, Schaar submitted his affidavit to the examiner that the chemical formulas and chemical names were the precise formulas or chemical names for the particular trademarked compounds. Notwithstanding this, however, it was convincingly established, not only by defendants' evidence but plaintiff's as well, that the substituted formulas and chemical names were broad and indefinite and encompassed hundreds, if not thousands, of possible compounds. The evidence establishes that Pattern Examples I to V set forth such a broad category of compounds that a man skilled in the art, with just the patent in suit before him, would be unable to select the particular ingredients or materials which would impart the desired characteristics.

[4] It follows that the specification is vague and indefinite in that it fails to teach a man skilled in the art the particular compounds which should be utilized in preparing patterns according to any one of the examples set forth in the specification. And the authorities are uniform in holding that where the disclosure of the patent is so vague and indefinite that it leaves the alleged invention in the realm of speculation requiring further experimentation in order to achieve the desired result, the patent should be held void. *Johns-Mansville Corp. v. Ludowici-Celadon Co.*, 7 Cir., 117 F.2d 199, 48 USPQ 180; *Standard Brands Inc. v. National Grain Yeast Corp.*, 3 Cir., 101 F.2d 814, 40 USPQ 318; *Ingersoll Milling Machine Co. v. General Motors Corp.*, D.C., N.D. Ill., 110 F.Supp. 12, 97 USPQ 110.

There is, however, still another reason why the specifications therein render the instant patent invalid. The specifications of the patent, by Pattern Examples I through III inclusive, state that the admixtures of ethyl cellulose and rosin derivatives should be heated to a temperature "from about 275°F to about 300°F, or higher". (It should be observed at this time that Pattern Examples IV and V apparently have been completely abandoned as no one has ever attempted the use of asphalt in making the patterns which are the subject of the suit.) In recommending these maximum temperatures, it seems clear that Erdle and Schaar were merely conforming to the generally understood and well known limitations placed upon the heating of ethyl cellulose. (See the Hercules Powder Company publication entitled "Ethyl Cellulose", which was received in evidence as defendants' Exhibit 37.) It was generally understood that if ethyl

cellulose was heated above 300°F, it resulted in a degradation of the cellulosic chain, a corresponding reduction in viscosity, a partial decomposition of the molecule, and a caramelization of the sucrose thereby produced.

During the trial of the case, it was convincingly established, even through the plaintiff's inter-partes tests conducted by Professor Selheimer, that in order even to attempt to attain the desired results contemplated by Pattern Examples I through III, it was necessary to heat the mix up to temperatures approximating 450°F for periods of about thirty minutes either in the injection molding machine or during the compounding thereof. This most important step, which departed from the generally recognized procedure, was completely omitted from the specification of the patent in suit. The importance of the overheating step is borne out by the fact that, if the mix was heated only to the recommended temperatures, the patterns were clearly unsuitable. As a consequence, the plaintiff's expert had to resort to the higher temperatures in order to produce anything approaching an acceptable pattern. Nor can the plaintiffs find comfort in the words "or higher" which follow the recommended numerical temperatures, since these words, when read together with the recommended temperatures, merely contemplate, of their very nature, a relatively slight increase and do not come close to suggesting that temperatures approaching 450°F must be used. It seems clear from the evidence adduced that Erdle and Schaar discovered the necessity of the overheating step well after the patent in suit was applied for. In fact, I believe the patent as issued demonstrates that the patentees were still experimenting when the patent was issued.

Finding that the overheating step is extremely essential in the production of suitable pattern materials in accordance with the patentees' own Pattern Examples I through III, I find that the patentees' failure to disclose this important step renders the patent invalid and void.

The next defense asserted and, perhaps, the defense that bolsters and affirms the defenses hereinbefore set forth, is the defense that both plaintiff's and defendants' inter-partes tests show that a man skilled in the art, who tried conscientiously to follow the teachings of the patent in suit, would be unable to produce patterns having the physical characteristics claimed.

Defendants' expert, Dr. Gayer, conducted two types of tests. The first type was directed toward verifying the efficacy of the Pattern Material Examples

I, II and III of the patent of the second type was the "Mixer" tests which were mixtures of only ethyl derivatives. The results Dr. Gayer found in Pattern I and III of the patent were definite that he could not distinguish the ingredients from these. As a result, he found that he could not refer back to the file of the other ingredients. It is also clear that, despite the fact that Dr. Gayer was unable to distinguish the ingredients having the physical characteristics claimed in Pattern I and III. It is abundant that defendants' testimony that the man skilled in the art, by following the teaching of the patent in suit, to produce the casting patterns possessing the characteristics set forth in the patent in suit.

I find plaintiff's Gayer's good faith in tests to be unsupported and totally unfounded.

My ruling concerning gains added, but under the fact that the plaintiff's interest in that plaintiff's expense, was unable to be commercially satisfactory. In accordance with the patent expert found it necessary to the teachings of the two different respects.

(1) He substituted  
called for in the  
Ester #2, RG-2);

(2) he had to raise the temperature up to 450°F, which, as the witnesses testified, are far in excess of the maximum temperature contemplated by the patent.

[5] Even with the teachings of the Selheimer was unacceptable commercial plaintiff's own experiments produce satisfactory patterns after having materials not called for to a step not disclosed follows that the patent close in the patent was sufficiently precise enable the members practice the invention while both parties' inter-patent commercially acceptable be produced in accordance with the teachings, I have

I, II and III of the patent in suit, and the second type was the so-called "special Mix" tests which were limited to the admixtures of only ethyl cellulose and rosin derivatives. The record is clear that Dr. Gayer found Pattern Examples I, II and III of the instant patent so indefinite that he could identify only two ingredients from these pattern examples. As a result, he found it necessary to refer back to the file history for all of the other ingredients. The record is also clear that, despite his efforts, Dr. Gayer was unable to produce patterns having the physical characteristics claimed in Pattern Examples I through III. It is abundantly clear, therefore, that defendants' tests establish that a man skilled in the art would be unable, by following the teachings of the patent in suit, to produce ready-made dental casting patterns possessing the physical characteristics set forth in the claims of the patent in suit.

I find plaintiff's attack upon Dr. Gayer's good faith in conducting these tests to be unsupported by the facts and totally unfounded.

My ruling concerning defendants' tests gains added, but unneeded, support from the fact that the record also reveals that plaintiff's inter-partes tests show that plaintiff's expert, Professor Selheimer, was unable to produce commercially satisfactory patterns in accordance with the patent in suit. Plaintiff's expert found it necessary to depart from the teachings of the patent in at least two different respects:

(1) He substituted materials not called for in the patent (Staybelite Ester #2, RG-2); and

(2) he had to resort to temperatures up to 450°F, which, as has been indicated, are far in excess of the maximum temperatures recommended in the patent.

[5] Even with these departures from the teachings of the patent, Professor Selheimer was unable to produce acceptable commercial patterns. Thus, if plaintiff's own expert is unable to produce satisfactory patterns by following the teachings of the patent and if he cannot produce acceptable commercial patterns after having substituted materials not called for and after resorting to a step not disclosed by the patent, it follows that the patentees did not disclose in the patent information which was sufficiently precise and complete to enable the members of the field to practice the invention when it expired. Since both parties' inter-partes tests show that commercially acceptable patterns cannot be produced in accordance with the patent's teachings, I hold that the patent

must be held invalid for lack of invention in failing to teach anything usable in the art.

[6] Concerning the question of infringement, it seems clear that this issue, too, must be resolved for the defendants. As has been indicated, the evidence clearly shows that it is impossible to produce commercially acceptable patterns according to the teachings of the patent in suit. It would be equally impossible for the defendants to possess the commercial success that they do enjoy if they manufactured their product in accordance with the teachings of the instant patent. Furthermore, the evidence also reveals that, except in the broadest sense, neither plaintiff nor the defendants follow the teachings of the patent. In fact, plaintiff's commercial formulations were evidently considered by it to be such an important trade secret that it refused to disclose the same until this Court so directed by its order of February 24, 1955. This, perhaps, best explains plaintiff's commercial success because it is quite evident that plaintiff would not enjoy that success if it confined itself to manufacturing in accordance with the teachings of the patent in suit. Accordingly, the issue of noninfringement must be decided for the defendants.

It is accordingly ordered, adjudged and decreed, for the reasons stated, that Claims 1 to 3, 6 to 10, and 13 to 19, all inclusive, of the Erdle and Schaar patent, here in suit, are held invalid and also not infringed, and the case is dismissed at plaintiff's costs.

#### Patent Office Board of Appeals

Ex parte REUGE

Patent issued Sept. 24, 1957

Opinion dated Mar. 29, 1957

#### PATENTS

##### 1. Patentability — Anticipation — Patents—Foreign (§ 51.2215)

Publication (ausgegeben) date is date on which invention is considered as having been patented in Germany, for purpose of constituting bar to United States patent under 35 U.S.C. 102(d).

##### 2. Patentability — Anticipation — Patents—Foreign (§ 51.2215)

Publication date is date on which invention is considered as having been patented in Switzerland under Swiss law



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**Ex parte Slob, 157 U.S.P.Q. (BNA) 172 (Pat. & Trademark Office Bd. App. 1967)**

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- {Caution} – possible negative treatment
- {Warning} – negative treatment indicated
- {Cited} – citation information available
- {Analysis} – cited and neutral analysis indicated

#### **SHEPARD'S SUMMARY**

***Shepard's FULL Summary:***

**No subsequent appellate history.**

**Citing References: None**

**PRIOR HISTORY ( 0 citing references )**

***(CITATION YOU ENTERED):***

***Ex parte Slob, 157 U.S.P.Q. (BNA) 172 (Pat. & Trademark Office Bd. App. 1967)***